

BOOTHBAY HARBOR MAINE

SURVEY REPORT



**NEW ENGLAND DIVISION
CORPS OF ENGINEERS, U. S. ARMY
BOSTON, MASS., SEPTEMBER 8, 1950**

800.92 (Boothbay Har) - 5

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NOT FOR PUBLIC RELEASE

SURVEY REPORT

ON

BOOTHBAY HARBOR, MAINE

SYLLABUS

The Division Engineer finds that no general benefits would result from the further improvement of Boothbay Harbor. He, therefore, recommends that no modification of the project for Boothbay Harbor be made at this time.

NOT FOR PUBLIC RELEASE

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION
BOSTON, MASS.

September 8, 1950

SUBJECT: Survey Report on Boothbay Harbor, Maine.

TO: The Chief of Engineers, Department of the Army, Washington 25,
D. C.

AUTHORITY

1. This report is submitted in compliance with Section 6 of the River and Harbor Act approved March 2, 1945 (Public Law No. 14, 79th Congress) which reads in part as follows:

"SECTION 6 - The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following-named localities.....Boothbay Harbor, Maine, particularly the Mill Cove Area."

2. In accordance with the above authority, a preliminary examination of the locality was made and the District Engineer, in his report dated February 15, 1946, recommended that a survey be made. The Division Engineer and the Board of Engineers for Rivers and Harbors concurred in the views of the District Engineer, and a survey was authorized by the Chief of Engineers under date of April 22, 1946.

DESCRIPTION

3. Boothbay Harbor is located on the northern end of Booth Bay, about 38 miles by water northeasterly from Portland Harbor and 14.5 miles by water southeast of Bath, Maine. It is one of the best anchorages on the coast of Maine and is used by all classes of vessels. The harbor is entered through Booth Bay and the channels are, in general, well marked. The entrance to the harbor is exposed to heavy seas only from the south, and from these the harbor proper is well protected by

outlying islands. The tidal currents are not great and the harbor is easily accessible at all times. At the northerly end of the harbor are two indentations which are separated by McFarland Point. The village of Boothbay Harbor and the waterfront development are located on the easterly of these indentations. The westerly indentation, known as Mill Cove is shallow and only slightly developed.

4. The locality is shown on United States Coast and Geodetic Survey Charts Nos. 230, 314 and 1204, and on the map accompanying this report. The mean tidal range is 8.8 feet and the spring range is 10.1 feet.

TRIBUTARY AREA

5. The town of Boothbay Harbor consists principally of a closely settled village lying on both shores of the harbor and a more sparsely settled farming section back of the village. In 1950, it had a population of 2,270. In 1940 its estates were valued at \$2,417,590. The summer population is very large and is estimated to number from 15,000 to 17,000 people. The nearest railroad is at the town of Wiscasset about 12 miles northwesterly, with which town a regular bus service is maintained. The entire region is a well-known and popular summer resort area, and a large portion of the town's revenue is derived from the business of attending the recreational trade. Boothbay Harbor also has a thriving business in connection with the fishing industry, both in buying, selling and processing fish, and in building and repairing the fishing boats. Storage of yachts and other vessels is an important source of income.

BRIDGES

6. Only one bridge, a drawbridge, crosses the areas considered in this report. This bridge is a wood pile and timber foot-bridge

owned by the town of Boothbay and crosses the upper end of the main harbor about 175 feet above the upper limit of the Federal project.

Principal details are as follows:

Type:	Swing
Channel Spans:	32 feet clear width both sides of swing span
Vertical Clearances with Swing Closed:	13.3 feet at M. L. W. 4.5 feet at M. H. W.
Plans Approved by War Department:	June 1901 and July 1926.
Date of Completion:	August 1928.

PRIOR REPORTS

7. Boothbay Harbor has been the subject of several previous reports.

Pertinent data with reference to these reports are embodied in the following tabulation:

<u>Published In</u>	<u>Nature and Date of Report</u>	<u>Work Considered and Recommendation</u>
House Document Number 46, 55th Congress, 1st Session	Preliminary Examination 1897	Widening 15-foot area in the upper harbor to bring that depth within reach of the wharves. Favorable.
House Document Number 277, 56th Congress, 1st Session	Survey Report 1900	Widening 15-foot deep area in the upper harbor to bring that depth to the wharves. Unfavorable.
House Document Number 82, 62nd Congress, 1st Session	Preliminary Examination and Survey Report 1911	Dredging along the wharves in the upper end of har- bor on easterly and westerly sides to 12 feet at mean low water. Favorable.
Unpublished Report	Preliminary Examination February 15, 1946	Dredging in Mill Cove area. Survey recommended.

EXISTING CORPS OF ENGINEERS PROJECT

8. The existing project for Boothbay Harbor provides for dredging to a depth of 12 feet at mean low water along the wharves and at the upper end

of the easterly indentation forming the more developed portion of the harbor. The project was authorized by the River and Harbor Act of July 25, 1912 and was completed in December 1913 at a cost of \$18,000. Maintenance costs were estimated in 1911 to be negligible. In 1946 the controlling depth was 10 feet in the dredged area which indicates that shoaling in that area is minor. There has been no dredging since the completion of the project, the only maintenance expenditure being made for surveys. The costs and expenditures to June 30, 1950 have been \$18,000 for new work and \$858.07 for maintenance, a total cost for permanent work \$18,858.07.

LOCAL COOPERATION ON EXISTING PROJECT

9. No local cooperation has been prescribed in connection with the existing project for Boothbay Harbor, Maine.

TERMINAL AND TRANSFER FACILITIES

10. On the easterly side of the main harbor, which is the east indentation of Boothbay Harbor, there are thirteen wharves serving four boat yards equipped with marine railways, three fish processing plants, including a freezer, and other businesses. On the westerly side there are ten wharves serving four boat yards equipped with marine railways, the Boothbay Harbor Yacht Club, an oil terminal, and other businesses. Two wharves are used in part by a garage, a restaurant, and a hardware store which principally supplies hardware for other than marine purposes. In addition on the west side of the main harbor is a frontage about 125 feet which was burned over several years ago and has not been rebuilt. At the present time there is a small-boat showroom at the inshore end of this section, but there are no facilities for launching craft. Immediately adjacent to the burned area is a town-owned solid-fill bulkhead structure, having a frontage of about 100 feet, which has not been completed. The fill area is now used as a parking area for automobiles. A float has been installed in front of the bulkhead as a landing for small craft.

11. On McFarland Point, which separates the main harbor and Mill Cove, is located a boat yard which extends into the outer end of Mill Cove. This yard has facilities for building and repairing boats up to approximately 200 feet in length.

12. At the upper end of Mill Cove, on the northeast side, is located a dealer in lobsters who has a timber runway and float used in receiving lobsters from the lobstermen. The float has practically no water alongside during low water stages. On the westerly side of the cove a general contractor has a timber crib wharf where he loads ice, loam, and building materials for transportation by barge to the outlying islands. This contractor formerly operated from a timber-crib dock at the head of the cove, but due to inadequate water depths had to abandon that location.

IMPROVEMENT DESIRED

13. In order to obtain the views of interested parties concerning the improvement desired, a public hearing was held at Boothbay Harbor, Maine on August 8, 1945. Present at the hearing were representatives of the local government, the fishing industry, and various business interests connected with the development of the harbor.

14. The improvement requested at the hearing consists of an anchorage 12 feet deep at mean low water and about 700 feet square in the center of Mill Cove, a channel 100 feet wide and 17 feet deep at mean low water connecting the anchorage to the harbor, and a channel 50 feet wide and 7 feet deep at mean low water extending from the north side of the anchorage to the head of the cove.

15. The proponents of the anchorage and the channel to the head of the cove claim that the anchorage will provide a much needed area for mooring yachts and fishing vessels and that the channel will enable lobstermen to bring their catch to a dock and permit the loading of materials on scows for transportation to outlying islands.

16. The proponents of the 17-foot channel leading to the anchorage state that such a channel is necessary to permit easy berthing of vessels at the local shipbuilders.

17. Subsequent to the hearing, it was requested by the Marine Service Incorporated in a letter dated February 10, 1947 to The Board of Engineers for Rivers and Harbors that consideration be given to dredging from the existing project area in the main harbor to its wharves.

COMMERCE

18. The following tables give a comparative statement of yearly freight and passenger traffic for the years 1939 to 1948 and freight in 1948 in detail.

Commerce Since 1938

Year :	Tons	:	Passengers	:	Year	:	Tons	:	Passengers
1939 :	4,874	:	8,115	:	1944	:	1,724:	:	(1)
1940 :	2,099	:	1,998	:	1945	:	1,526:	:	(1)
1941 :	1,714	:	(1)	:	1946	:	1,560:	:	(1)
1942 :	625	:	(1)	:	1947	:	2,229:	:	25,564
1943 :	1,402	:	(1)	:	1948	:	3,539:	:	7,436

(1) None Reported.

Freight Traffic 1948 (Latest Data Available)

Foreign

<u>Imports</u>	<u>Tons</u>
Shellfish and Products	12

Domestic

Coastwise Receipts

Gasoline	25
Fuel Oil	14

Coastwise Shipments

Fish, Fresh	107
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Local

Fish, Fresh	3,260
Lobsters, Live	121

GRAND TOTAL, ALL TRAFFIC	3,539
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The decrease in commerce during the period of 1939 to 1942 was due to the decline of the fishing industry and the receipt of coal and petroleum products. Between 1941 and 1946 there was no receipt of petroleum products and since 1947 the receipt of petroleum products has amounted to less than 100 tons per year. There has been no receipt of coal since 1941. However, statistics indicate that the tonnage of fish handled in the harbor has increased from 625 tons in 1942 to about 3,500 tons in 1948. In recent years there has been no commerce of any consequence in Mill Cove, other than buying of lobsters from the local lobstermen.

VESSEL TRAFFIC

19. The number and size of commercial vessels using Boothbay Harbor are indicated in the following table for 1948, the latest year for which statistics are available.

VESSEL TRIPS - INBOUND AND OUTBOUND

Draft	Steamers	Motor Vessels	Barges	Total
16	2	-	-	2
14	-	2	-	2
12	12	3	-	15
11	-	1	-	1
9	-	467	-	467
8	-	10	-	10
7	-	556	-	556
6	-	509	9	518
5	-	3	-	3
4	-	111	8	119
3	-	14	11	25
Total	14	1,676	28	1,718
Total Net Registered Tonnage	992	30,148	714	31,854

In addition the harbor is used by about 600 visiting pleasure craft annually. There is a home fleet of about 260 pleasure craft and 77 small fishing vessels which are not included in the above tabulation.

20. The existing conditions in Mill Cove has limited the vessel traffic in that part of the harbor to that of about 8 lobstermen and to occasional use by a few transient yachts.

DIFFICULTIES ATTENDING NAVIGATION

21. There are no navigational hazards present in the main harbor. In the Mill Cove area the principal difficulty attending navigation is the lack of water in the cove, especially at the upper end. Under existing conditions, local fishermen travel between their moorings and shore only with considerable difficulty, and are frequently delayed for periods up to two hours while awaiting a favorable stage of tide. The lack of water at the head of the cove was the contributing factor in the decision of the general contractor, engaged in transporting supplies and materials from Boothbay to offshore islands, to move from a wharf at the head of Mill Cove.

WATER POWER AND OTHER SPECIAL SUBJECTS

22. The waterway is tidal. Matters of water power or flood control are not pertinent to this report. The improvements contemplated will not have an adverse effect on wild life or shellfish.

PLANS OF IMPROVEMENT IN MILL COVE

23. Two plans of improvement in Mill Cove are considered in this report. These plans, designated as "Plan A" and "Plan B", are shown on the accompanying plan. The items of improvement included in Plan A, which is essentially the same as that presented by all the proponents during the public hearing of August 8, 1945, are as follows:

a. Dredging an entrance channel 100 feet wide and 17 feet deep at mean low water from the 17-foot depth in Booth Bay to a point 50 feet north of the northerly end of the Frank L. Sample Jr. Incorporated wharf.

b. Dredging an anchorage area 12 feet deep at mean low water 500 feet wide, and extending northerly 700 feet in Mill Cove from the entrance channel.

a. Dredging a channel 50 feet wide and 7 feet deep at mean low water, extending 400 feet from the north side of the anchorage toward the head of the cove.

24. The alternate plan designated as "Plan B" involves a less costly improvement which consists of the following items:

a. Dredging an anchorage area 7 feet deep at mean low water approximately 700 feet long, extending in a northerly direction from the 7-foot depth in Mill Cove over a width varying from about 450 feet to about 300 feet.

b. Dredging a channel 60 feet wide and 7 feet deep at mean low water, extending 400 feet from the north side of the anchorage toward the head of the cove.

25. The foreseeable benefits resulting from Plan A are in no way commensurate with the relatively large costs occasioned by the necessity of removing a considerable quantity of ledge rock. In addition, an anchorage dredged in ledge rock provides a poor anchorage area. Plan B was developed after consultation with the various local interests involved, and represents a practical plan that would provide both for the needs of present and prospective local fishermen and the development of pleasure boating by summer residents along Mill Cove. The depth and size of the anchorage is dictated by the presence of ledge rock. It would not involve the removal of any rock.

PLAN OF IMPROVEMENT IN MAIN HARBOR

26. The request by the Marine Service Incorporated that dredging be accomplished between their wharves and the existing project in the main harbor is considered to be a request for an approach to a private facility and as such should not be provided at Federal expense. Since no other request was made for improvement in the main harbor, no further consideration

was given to the development of a plan of improvement in the main harbor.

AIDS TO NAVIGATION

27. The United States Coast Guard has been consulted with respect to the aids to navigation required for the proposed improvement.

SHORE LINE CHANGES

28. The shore of Booth Bay is the typical crenulated shore line of northern Maine, consisting of many ledge outcroppings interspersed with relatively short beach areas. In developed areas the shore is lined with piers and bulkheads. Dredging within the coves would not create conditions which would affect this shore line.

ESTIMATES OF FIRST COSTS

29. The estimates of first cost of the improvements considered herein are as follows:

Plan A:

Dredging 147,400 cubic yards at \$1.50	\$221,000
Ledge removal, 26,800 cubic yards at \$25	670,000
Estimated cost of providing aids to navigation by the Coast Guard	<u>3,000</u>
TOTAL PROJECT COST, PLAN A	\$894,000

Plan B:

Dredging 56,700 cubic yards at \$1.35	\$ 76,500
Estimated cost of providing aids to navigation by the Coast Guard	<u>2,000</u>
TOTAL PROJECT COST, PLAN B	\$ 78,500

The unit prices reflect current costs of the type of work involved and include allowances for engineering and overhead. Estimated quantities are based on an overdepth of 2 feet. The estimate of cost for Plan A is based upon removal of both overlying material and ledge rock by a bucket dredge, with disposal at sea. The estimate of cost for Plan B is based upon the work being done by a hydraulic dredge, with disposal of the material upon areas furnished by local interests.

ESTIMATES OF ANNUAL CHARGES

30. The annual charges have been computed for the two plans of desired improvements on the basis of a local cash contribution of 50 per cent of the initial construction cost as discussed in paragraph 39. The useful life of the improvement was estimated to be 50 years. Interest and amortization were computed at an interest rate of 3 percent on the Federal investment and 3-1/2 percent on the non-Federal investment.

<u>INVESTMENT</u>		
<u>Federal</u>	<u>Plan A</u>	<u>Plan B</u>
Construction by Corps of Engineers	\$145,500	\$ 38,250
Aids to Navigation by Coast Guard.....	<u>3,000</u>	<u>2,000</u>
TOTAL FEDERAL INVESTMENT	\$148,500	\$ 40,250
<u>Non-Federal</u>		
Construction by Local Interests.....	<u>\$145,500</u>	<u>\$ 38,250</u>
TOTAL NON-FEDERAL INVESTMENT..	\$145,500	\$ 38,250
TOTAL PROJECT COST.....	\$894,000	\$ 78,500

<u>ESTIMATED ANNUAL CHARGES</u>		
<u>Federal</u>		
Interest	\$ 13,460	\$ 1,210
Amortization.....	3,980	360
Maintenance.....	<u>1,000</u>	<u>750</u>
TOTAL FEDERAL ANNUAL CHARGES.....	\$ 18,440	\$ 2,320
<u>Non-Federal</u>		
Interest	\$ 16,000	\$ 1,340
Amortization.....	3,400	290
Maintenance.....	<u>0</u>	<u>0</u>
TOTAL NON-FEDERAL ANNUAL CHARGES.....	\$ 19,400	\$ 1,630
TOTAL ANNUAL CARRYING CHARGES.....	\$ 37,840	\$ 3,950

ESTIMATES OF BENEFITS

31. The general benefits that could be derived from the desired improvement would be concerned with the existing fishing and contracting businesses located in the Mill Cove area of Boothbay Harbor, and with the development of recreational boating in the immediate vicinity, as well as providing for additional anchorage area for transient pleasure boats.

32. The improvement proposed as Plan A, was determined to be excessive in cost and to result in an anchorage which would be undesirable for mooring because its ledge bottom would not afford good holding ground. In view of these conditions, local interests agreed to consideration of Plan B which deleted the 17-foot entrance channel and the greater depth in the anchorage provided under Plan A. It is to be noted that the principal benefits of Plan A over Plan B would be those which would accrue to the shipyard operated by Frank L. Sample, Jr., Incorporated. The greater depth in the channel would allow the yard to handle larger vessels and increase its dollar volume of business. However, such benefits are secondary benefits of purely local character and could not be used to justify a Federal project.

33. Boothbay Harbor is used extensively by recreational craft. A large fleet, as described below, makes the harbor its home port.

Local Recreational Craft - Home Fleet

<u>Type</u>	<u>:</u>	<u>Number</u>	<u>:</u>	<u>Length</u> <u>(Feet)</u>	<u>:</u>	<u>Draft</u> <u>(Feet)</u>	<u>:</u>	<u>Value, based on 50%</u> <u>of present new value</u>
Cruiser	:	62	:	20 - 40:	:	2.6 - 3.0	:	\$ 500,000
Inboard	:	77	:	17 - 30:	:	1.6 - 2.6	:	150,000
Sail	:	59	:	17 - 21:	:	1.2 - 3.6	:	55,000
Auxiliary Sail	:	62	:	34 - 50:	:	4.6 - 6.0	:	540,000
TOTAL	:	260	:	:	:	:	:	\$1,245,000

Transient boats, averaging 7 per day for the 82 day season visit the harbor, as well as 4 schooners chartered for recreational cruises which visit in the harbor one day a week for 10 weeks. This transient fleet using the harbor for 614 boat days is equivalent to the permanent addition of 8 vessels to the home fleet as follows:

Transient Recreational Craft - Equivalent Home Fleet

<u>Type</u>	<u>Number</u>	<u>Length</u> <u>(Feet)</u>	<u>Draft</u> <u>(Feet)</u>	<u>Value, based on 50%</u> <u>of present new value</u>
Cruiser	4	36	3.6	\$ 32,000
Auxiliary Sail	4	45 - 60	6.0	38,000
TOTAL	8			\$ 70,000

In terms of the possible net return which could be realized on these vessels if they were operated on a for-hire basis, the total possible benefit that would be realized by the owners is as follows:

<u>Craft</u>	<u>Benefit</u>
Cruiser	\$ 47,880
Inboard	15,000
Sail	6,600
Auxiliary Sail	52,020
TOTAL	\$121,500

Proponents for the desired improvement claimed that Boothbay Harbor did not presently provide sufficient mooring space for this fleet. In 1949 field investigation of mooring conditions indicated that there is presently adequate room in Boothbay Harbor to accommodate both recreational and fishing craft. There are always moorings available for transient craft, to such an extent that during a yacht club cruise over the 4th of July weekend there were a great many moorings that were not used. The present local and transient recreational fleet, therefore, is not denied any part of its possible \$121,500 annual benefit through lack of sufficient mooring area. There is no indication that the proposed improvement would result in any increase in the home or transient fleets. Since there are presently

sufficient moorings for additional boats in Boothbay Harbor no claim of direct benefit could be substantiated for the Mill Cove improvement. The only benefit which could be credited to the desired improvement would be the small personal convenience of an owner mooring his boat in the cove opposite his home. This convenience would be counteracted by the difficulties of crossing mud flats at low tide to reach the boats.

34. Lobstering is carried on by fishermen located in all areas at Boothbay Harbor. About 8 lobstermen who operate from Mill Cove do so for personal preference generally because they live on the shore of the cove. Such men must anchor their boats near the cove entrance and use skiffs to reach the shore. This means that at low water, the lobstermen must cross extensive mud flats which are partially dry. The men, therefore, encounter difficulties and are delayed in waiting for tide. While the desired improvement would allow these men to moor their vessels nearer to their homes, they will still have to cross the shoalest portions of the mud flats. Thus there would be no appreciable reduction of tidal delays presently encountered. There is no indication that any of these men would increase their catch because of the improvement. Since there already is opportunity to enter the lobstering activity in other parts of the harbor, there is no reason to assume that any men would become lobstermen solely because Mill Cove were improved.

35. There are several lobster dealers in Boothbay Harbor. The only one in the Mill Cove area is located at the head of the cove where his wharf and float are nearly dry at low water. Lobstermen reach this wharf at high water by power boats and at low water by skiff throughout the year except during the winter when the dealer obtains his lobsters by truck from outside of Mill Cove. The improvement of the cove would enable the lobstermen to reach the wharf by power boats at all tidal stages and allow the dealer to locate his storage cars nearer to his wharf. It is doubtful that the improvement of the cove would allow

lobstermen to reach the wharf throughout the winter, and truck deliveries would still be necessary during that period. There is no indication that the dealer will handle an increased volume of lobster. Since there are other lobster dealers in Boothbay Harbor, lobstermen land their catches in Mill Cove at their own option and any losses incurred are their responsibility. The improvement of Mill Cove for the lobster industry thus becomes one of providing more convenient access to a private facility for the benefit of the owner. There would be no benefit to the industry as a whole since neither the size of the catch or its net value would be increased.

36. At the public hearing in 1945, proponents for the Mill Cove improvement claimed that it would benefit a contractor operating from a wharf at the upper limit of the cove. This contractor was one of a number of contractors in Boothbay who transport building materials to off-shore islands on a competitive basis. Subsequently the contractor removed his operations from the wharf because of the shoal conditions. In 1949 he was not operating from Mill Cove. At present he has returned to the cove and now operates from a wharf on the west side of the cove near the deeper water at its entrance. Since the contractor has returned to the cove after leaving it, it must be concluded that he can satisfactorily operate from his new location.

37. At the present time, in the main part of Boothbay Harbor, there is frontage available for further expansion in docking facilities and the harbor is not considered to be overcrowded. In view of this it is believed that no general benefit would be derived by providing additional mooring space in, and improved access to the Mill Cove area.

COMPARISON OF BENEFITS AND COSTS

38. For the improvement of the Mill Cove area of Boothbay Harbor, there are no general benefits. The benefit-cost ratio, therefore, is zero.

PROPOSED LOCAL COOPERATION

39. The town manager has indicated that the town of Boothbay Harbor is not in a position to make any cash contribution toward the construction of the improvement. This was also confirmed verbally by representatives of local businesses. However, in view of the fact that only local benefits could be derived from the improvement, local interests should be required to make a substantial contribution if any work is undertaken. It is considered that such a contribution should not be less than fifty percent of the initial construction cost. In addition local interests should be required to provide all lands, rights-of-way and easements necessary for the work, including spoil areas, and bulkheads as required, and to hold and save the United States free from all damages arising from the construction and the improvement.

ALLOCATION OF COSTS

40. On the basis of proposed local cooperation the project construction costs are allocated as follows:

<u>Federal</u>	<u>Plan A</u>	<u>Plan B</u>
Corps of Engineers	\$445,500	\$ 38,250
Coast Guard	3,000	2,000
<u>Non-Federal</u>		
Local Interests	<u>445,500</u>	<u>38,250</u>
TOTAL PROJECT COST	\$894,000	\$ 78,500

COORDINATION WITH OTHER AGENCIES

41. All Federal, state and local agencies having interests in the development and use of the waterway were notified of the hearing held August 8, 1945 to obtain the views of the local interests concerning the improvements desired. Subsequent discussions were held with local officials and other local interests concerning the desired improvements.

DISCUSSION

42. Boothbay Harbor is located on the northern end of Booth Bay. It is considered to be one of the best harbors on the coast of Maine, and is used by all classes of vessels. The entrance to the harbor is exposed to heavy seas only from the south, and from these the main harbor is well

protected by outlying islands. The portion of the harbor which has been improved is well developed and has an active waterfront.

43. The principal industries at Boothbay Harbor are fishing, lobstering, and the entertainment of summer visitors. The harbor has a permanent fishing fleet of about 77 vessels augmented by about 65 fishing vessels from other ports which fish in the adjacent waters. The harbor is also used during the summer by a local pleasure fleet of 260 craft and visiting pleasure fleet of about 600 vessels. In addition 6 ferries are operated on scheduled trips to offshore islands. The port is also used by small commercial vessels.

44. While the main harbor appears to be well developed, there are frontages available for expansion adjacent to the existing project, and there are adequate mooring areas available to accommodate any reasonable expansion.

45. The area in Mill Cove has not been developed to any great extent. There is a shipbuilding and repair business at the entrance to the cove which employs over 100 local residents. A contractor who transports building materials to offshore islands formerly operated from a wharf at the upper limit of the cove. Because of shoal water, he was forced to move to another location. For a time his mainland operations were conducted from a base outside of Mill Cove. Subsequently he has returned to the cove and operates from a wharf on the west side, near the deeper water at the entrance. His return to the cove indicates that conditions at the new location are satisfactory for the conduct of his business. A dealer in lobsters conducts a business in the upper portion of the cove, but is greatly hindered by lack of sufficient water. There are about 8 lobstermen who use Mill Cove as their anchorage.

46. Local interests are of the opinion that the present shoaled condition of Mill Cove is due to the failure about 20 years ago of a small ice-pond dam on Mill Brook, just above the road at the head of the cove. There is no visible evidence, however, about the remaining portion

of the dam to indicate that sufficient material could have been washed out to have caused the shoaling. In view of this, it is not expected that there would be any great quantity of shoaling of the desired improvement from this source.

47. The desired improvements originally requested by the proponents during the public hearing held August 8, 1945, and described in this report as Plan A, represented the ideal development of Mill Cove. However, studies made in the cove showed that ledge rock occurred over the greater part of the area and that the size and depths of desired channels and anchorage could be obtained only by removing about 26,800 cubic yards of rock. Aside from the objection that an anchorage area excavated in rock does not provide good holding ground for the mooring of boats, the cost of the improvement would be excessive.

48. In view of the objections to Plan A, a meeting was held with the principal proponents of the improvement and the plan described in this report as Plan B was developed. The principal difference between this plan and Plan A is the elimination of the 17-foot entrance channel and decreasing of the depth of the anchorage from 12 to 7 feet at mean low water. This plan was acceptable and embodied the desires of the local interests for the improvement of the harbor.

49. The desired depth of 7 feet below mean low water for the anchorage area would be adequate for the local fishermen and would accommodate the majority of the visiting and local pleasure craft. Sufficient material would be left overlying the ledge to provide good holding ground for mooring purposes. In Plan B the width of the channel was increased to 60 feet in order to provide a width which could be more efficiently excavated by hydraulic plant.

50. The material to be removed under Plan B can be handled hydraulically with disposal in an area at the north end of the cove. This is the area formerly flooded before the failure of the old mill dam.

51. Subsequent to the public hearing and the conference which developed Plan B, a request was made by The Marine Service, Incorporated, in a letter dated February 10, 1947 to The Board of Engineers for Rivers and Harbors, that consideration be given to modifying the existing project for the main harbor to provide a depth of 12 feet below mean low water to its wharves. The wharves are located on the west side of the main harbor opposite McFarland Island. The cost of such an improvement would be small, and the benefits to be derived from the modification would be entirely local in character accruing principally to the Marine Service, Incorporated, which is one of several boat servicing facilities in the harbor. In view of the fact that such an improvement in reality constitutes an approach to a private facility the expenditure of Federal funds would not be warranted, and the desired dredging was not considered in the plan of improvement.

52. It was the opinion of the local proponents during the hearing in 1945 that there would be a considerable increase in the catch of fish and lobsters and in the use of the harbor by local and visiting pleasure craft. In July 1949 a field investigation was made of the harbor, including discussions with town officials and representative business men to obtain corroborative evidence that such increases would take place. No indication was found that any increase in the catch of fish or lobsters could be anticipated or that any increase in the use of the harbor would take place. It was found that there is adequate mooring space in the harbor for visiting and local craft. This is substantiated by the fact that 15 moorings were unused during the 4th of July weekend cruise of the Eastern Yacht Club from Marblehead, Massachusetts. It was also found that the waterfront facilities in the main harbor are adequate and that there is additional frontage available for expansion of such facilities when required, including the frontage of an area that was destroyed by fire and which has not been rebuilt. In addition some of the principal wharf

and waterfront structures are used for purposes other than those requiring access to navigable waters.

53. In view of the fact that it is felt that there will be no increase in the fishing industry and that there is adequate mooring space and facilities in the main harbor for the present and prospective needs, it is believed that further improvement is not warranted. However, the improvement of Mill Cove would undoubtedly bring about a slight rearrangement of the economics of the harbor and any benefits obtained thereby would be purely local in character and accrue to specific individuals.

54. The matter of possible local cash contribution toward the cost of the work was discussed with local authorities. The town manager of the town of Boothbay Harbor and the president of the local chamber of commerce both advised in July 1949, that they were of the opinion that the town would not favorably consider making a cash contribution toward the improvement because of other town expenses. This has been confirmed in writing by the town manager. Local interests could be expected to furnish spoil areas adjacent to the head of the cove for disposal of hydraulically dredged materials.

55. The total first cost of Plant A is estimated as \$894,000 and the annual cost is estimated as \$37,840. The total first cost of Plan B is estimated as \$78,500 and the annual cost is estimated as \$3,950. The estimated costs include the cost of establishing and maintaining aids to navigation.

CONCLUSIONS

56. The present development of Boothbay Harbor provides adequate mooring areas for all fishing and recreational craft which use the harbor and for any expansion in such use which may be reasonably anticipated. Shore facilities in the main or developed part of the harbor are sufficient to serve these vessels and handle the catch of fish and lobsters landed. There is frontage available in the main harbor for any desired expansion of shore facilities.

57. The improvement of Mill Cove is, therefore, not required to provide additional anchorage or for expansion of shore facilities. The improvement would not serve to increase the catch of seafood landed at Boothbay Harbor or to increase its net value. The desired improvement would serve only as a convenience to those firms or individuals which have located on the shore of Mill Cove and, therefore, no benefit would be derived by the general public. The improvement of Mill Cove is not warranted.

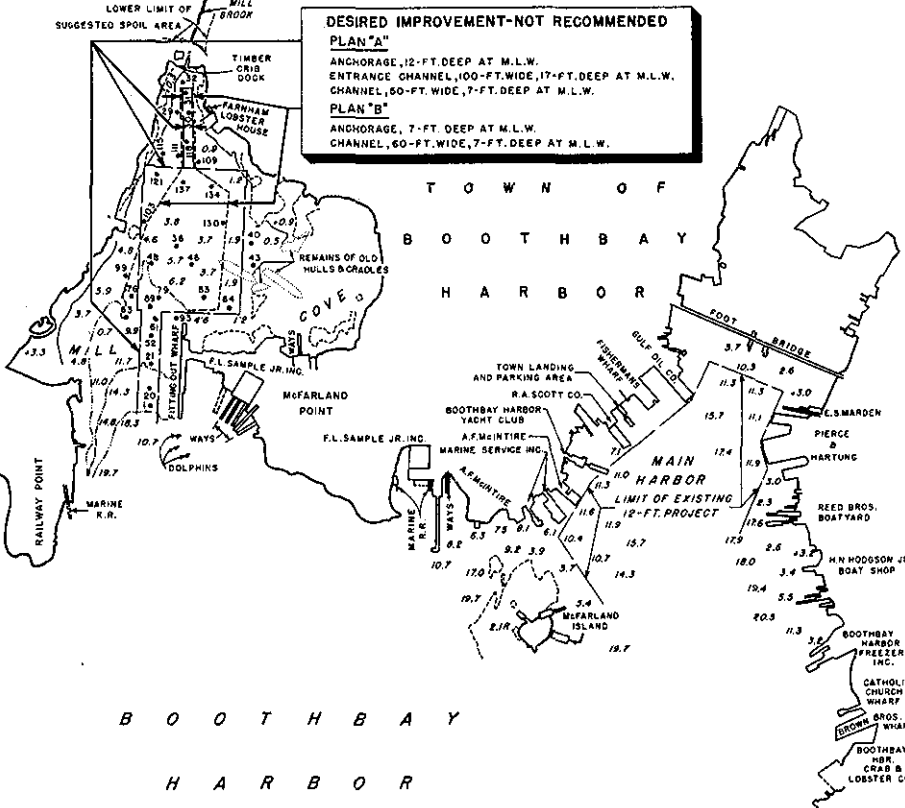
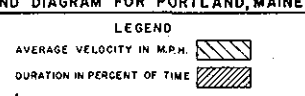
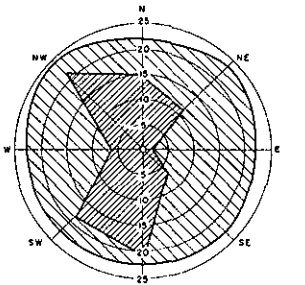
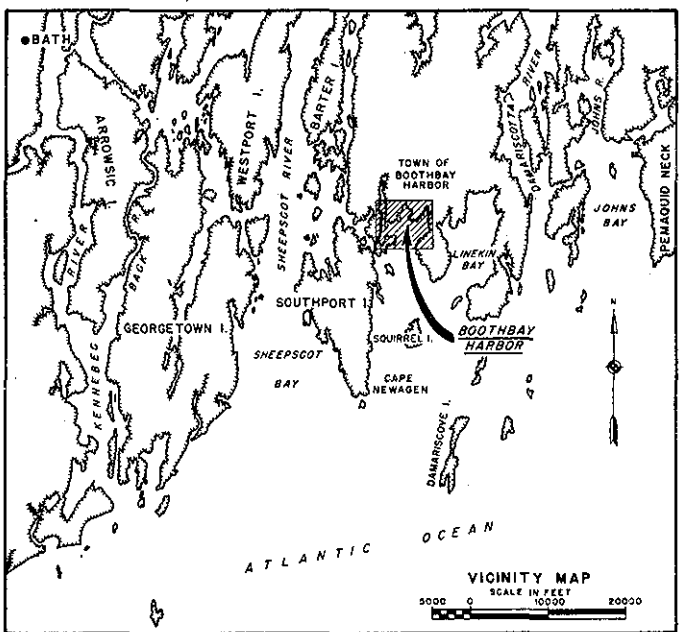
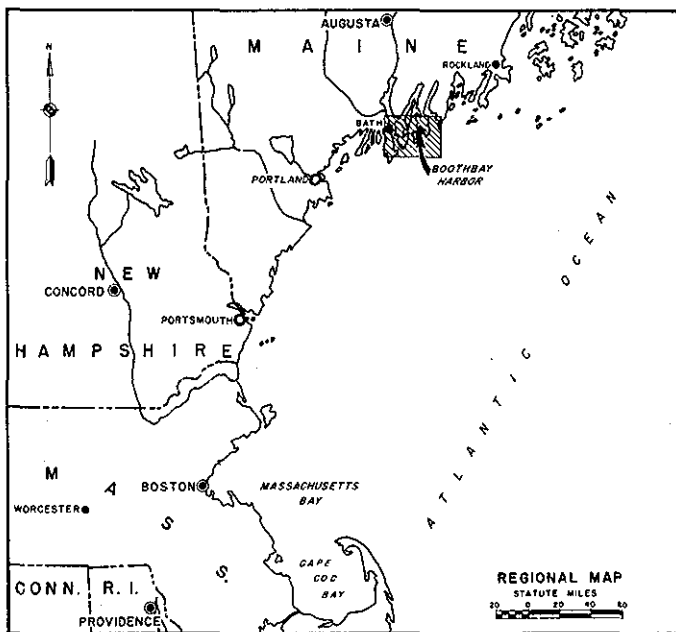
58. The desired improvement in the main or developed part of Boothbay Harbor would primarily serve to provide deeper access to a private boat servicing facility. The provision of access to a private facility is not warranted at Federal expense.

RECOMMENDATION

59. The Division Engineer recommends that no modification be made to the existing project for Boothbay Harbor, Maine, by the Federal Government at the present time.

1 Inclosure
Plate No. 1

H. J. WOODBURY
Colonel, Corps of Engineers
Division Engineer



DESIRED IMPROVEMENT-NOT RECOMMENDED
PLAN "A"
ANCHORAGE, 12-FT. DEEP AT M.L.W.
ENTRANCE CHANNEL, 100-FT. WIDE, 17-FT. DEEP AT M.L.W.
CHANNEL, 50-FT. WIDE, 7-FT. DEEP AT M.L.W.
PLAN "B"
ANCHORAGE, 7-FT. DEEP AT M.L.W.
CHANNEL, 50-FT. WIDE, 7-FT. DEEP AT M.L.W.

LIST OF PROBINGS

NUMBER	DEPTH WATER	DEPTH PROBE	REMARKS
10	15.2	19.2	Sand to soft Mud
20	15.7	18.0	Sand to Ledge
21	11.7	12.4	Mud to Ledge
29	0.4	9.3	Sand and Mud
30	0.6	9.4	Sand to Mud to Sand
31	0.3	9.8	Sand Mud Hardpan to Refusal
32	0.3	7.8	Sand to Hardpan to Refusal (pass Rock)
38	3.1	14.1	Mud to Clay to sticky Clay
40	1.5	9.2	Mud to sticky Mud to Ledge
43	1.0	14.0	Soft to stiff Mud
46	5.4	14.1	Soft Mud to Sand crust to Mud
48	6.1	14.5	Soft to stiff Mud mixed with Sand
52	10.0	11.9	Gravel to Rock refusal
61	9.2	19.0	Sand to Hardpan
63	8.1	8.8	Sand to Ledge
76	7.6	7.5	Gravel to Ledge
79	7.5	10.9	Sand to Sandy Clay to Rock refusal
83	4.3	15.3	Soft to stiff Mud
84	2.0	5.4	Mud to Ledge
89	8.2	11.7	Sand to Ledge
98	3.5	14.0	Mud
103	2.3	13.7	Sandy Mud to Refusal (pass Ledge)
109	1.1	5.6	Soft Sandy Mud to Ledge
111	0.9	3.0	Mud to Ledge
115	7.1	9.6	Sand, Gravel, Stones
118	0.7	9.8	Soft Mud
121	1.2	10.2	Soft Mud to stiff Sandy Mud to Refusal
134	1.4	10.1	Sandy Mud to Ledge
137	1.8	13.8	Soft Sandy Mud to refusal (pass Ledge)
93	7.8	13.4	Sand to Ledge

LEGEND
Mean Low Water
7-FT. Curve of Depth
12-FT. Curve of Depth
17-FT. Curve of Depth
Ledge Covered at High Water

NOTES:
Soundings are in feet and tenths and are referred to the plane of Mean Low Water.
Hydrography and Topography from survey of Sept. 1946.

BOOTHBAY HARBOR, MAINE
IN 1 SHEET
SCALE IN FEET
200 0 200 400 600 800 1000
NEW ENGLAND DIVISION, BOSTON, MASS. JUNE 12, 1956
APPROVAL RECOMMENDED
APPROVED
SUBMITTED
REPORT AND SPECIAL STUDIES BRANCH
FILE NO. 11720-6-2